

## Three new species of *Amblyaspis* Förster (Hymenoptera: Platygasteridae) from India along with a Key to Indian species

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### Abstract

The genus *Amblyaspis* Förster, 1856 (Hymenoptera: Platygasteridae) is represented by eight species in India. Three species of *Amblyaspis*: *Amblyaspis hirsuta*, *Amblyaspis emarginata* and *Amblyaspis narendrani* are hereby described as new to science. An identification key to the species of *Amblyaspis* in India is also included.

**Keywords:** Hymenoptera, Platygasteridae, *Amblyaspis*, new species, India, key.

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### Introduction

*Amblyaspis* Förster, 1856 (Hymenoptera: Platygasteridae) comes under the subfamily Platygasterinae and are reported as the parasitoids on *Contarinia pisi* Winnertz on *Pisum sativum* L., *Rhopalomyia californica* Felt. etc. (Vlug, 1995). The genus is represented by 81 species all over the world, 18 species from the Oriental region (Cora and Johnson, 2015) and eight species in India (Mukerjee, 1978; Veenakumari et al., 2013; Veenakumari, et al., 2015). This genus is characterized by almost fused A9-A10 and by the dense hairs on the scutellum. Three species of *Amblyaspis* are hereby described as new to science. A key to Indian species of *Amblyaspis* is also included.

### Materials and Methods

Standard morphological terminologies and abbreviations are after Masner and Huggert (1989). Description and imaging were carried out employing Leica M205A and Leica DFC-500 digital camera. All the specimens studied are deposited at Zoological Survey of India, Calicut.

### Abbreviations

OOL= oculo ocellar line; LOL= lateral ocellar line; OD= ocellar diameter; POL= posterior ocellar line; A1-A10= antennal segments 1-

10; IOS= interorbital space; T1-T6= metasomal tergites 1-6.

### *Amblyaspis* Förster, 1856

Type species: *Platygaster tritici* Walker, 1856

### Diagnosis

Head transverse, Antenna 10 segmented in both sexes; A9-A10 in female almost fused, separated only by a fine suture; scutellum flattened in dorsal view, somewhat pointed, hardly transverse, not separated from mesoscutum by a groove; scutellum with dense hairs; tarsi 5 segmented; metasoma six segmented; forewing with submarginal vein, not knobbed apically.

### Key to Indian species of *Amblyaspis* Förster, 1856

1. Notauli present.....2
- Notauli absent.....3
2. Scape 7 X as long as wide; clava 1.13 X A3-A6 combined.....  
.....**A. kuringi Veenakumari and Buhl**
- Scape 4.4 X as long as wide; clava subequal to preceding segments combined.....  
.....**A. dalhousianus Mukerjee**
3. Fore wings emarginate medially (fig. 15).....  
.....**A. emarginata sp. n.**
- Fore wings rounded medially (fig. 7).....4

4. Mesoscutum smooth.....  
.....**A. charvakae Veenakumari and Buhl**
- Mesoscutum finely reticulate (fig. 21)..... 5
5. Occiput with six prominent longitudinal striae laterally.....  
.....**A. ashmeadi Veenakumari and Buhl**
- Occiput with faint striae or without striae...6
6. OOL equal to LOL.....**A. narendranii sp. n.**
- OOL not equal to LOL.....7
7. OOL less than 1.5 X LOL.....8
- OOL greater than 1.5 X LOL.....9
8. A10 elongate, 1.7 X as long as wide; metapleura with dense white setae.....  
.....**A. hirsuta sp. n.**
- A10 not elongate, 1.08 X as long as wide; metapleura with sparse, posteriorly oriented yellow setae.....  
.....**A. khasiana Veenakumari and Buhl**
9. Occiput reticulate with sparse longitudinal striae in lower half; scape less than 5 X longer than wide.....10
- Occiput reticulate without any longitudinal striae; scape more than 5.5 X longer than wide.....  
.....**A. panhalensis Veenakumari and Buhl**
10. Head 1.7 X higher than long; A10 1.76 X as long as wide .....  
.....**A. fabrei Veenakumari and Buhl**
- Head 1.48 X higher than long; A10 1.43 X as long as wide.....  
.....**A. tipusultani Veenakumari and Buhl**

**Amblyaspis hirsuta** Anjana and Rajmohana, sp. n. (Figs. 1-8)

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**Diagnosis:** Length 1.13 mm; occiput strongly reticulate; hyperoccipital carina present; A3 equal to A4; notauli absent; scape 5.8 X as long as wide; mesoscutum finely reticulate.

#### Description

Female: Length 1.13 mm (holotype) (fig. 1); A1-A2 and legs yellowish brown; A3-A9 dark brown; tegula dark brown; microtrichia dark brown; last segment of tarsi slightly darkened.

Head from above 2.18 X as wide as long

(fig. 2); 1.09 X as wide as mesosoma; head in front view 1.17 X as wide as high (fig. 4); occiput strongly reticulate and without any striae; frons finely reticulate; lower frons above toruli with several transverse striae; IOS 2.29 X eye height; eyes bare; OOL 2.8 X OD; OOL 1.89 X LOL; POL 2.4 X LOL; eye height (in dorsal) 3.2 X temples; hyperoccipital carina present, extending between orbits; scape 5.8 X as long as wide; A3 equal to A4; scape 1.36 X as long as A7-A10 combined; ratio of length and width of antennal segments A1-A10 being 0.29: 0.05: 0.07: 0.03: 0.05: 0.03: 0.05: 0.03: 0.04: 0.03: 0.04: 0.04: 0.06: 0.05: 0.05: 0.06: 0.05: 0.06: 0.04 (fig. 3).

Mesosoma 1.39 X as long as wide (fig. 5); pronotum non angular, clearly visible from above; lateral sides of pronotum sparsely setose with fine reticulations; epomial carina present; mesoscutum 1.07 X as long as wide, finely reticulate with sparse setae; notauli absent (fig. 5); posterior margin of mesoscutum with median lobe, projecting above mesoscutellum; scutellum 1.07 X as long as wide; fully covered with white setae, mesopleuron smooth; metapleuron fully covered with white setae (fig. 6). Forewing 2.56 X as long as wide (fig. 7), with fine and dense microtrichia; marginal cilia on posterior margin of forewing 0.12 X width of wing.

Metasoma 1.96 X as long as wide (fig. 8); T1 with dense white setae laterally; T2 with white setae at basal region, rest smooth; T3-T6 with punctures at the apex; T5-T6 with a transverse row of white setae; length and width of T1-T6 being: 0.09: 0.10: 0.36: 0.29: 0.03: 0.24: 0.03: 0.19: 0.03: 0.11: 0.03: 0.06.

#### Specimen examined

Holotype: Female, India, Kerala, Anjuruli, Idukki (9.74<sup>0</sup>N, 77.06<sup>0</sup>E), 09.iv.2013, Coll. Rajmohana, on card, Reg. No. ZSI/WGRS/IR.INV.4636, paratype: female, India: Kerala, Anjuruli, Idukki (9.74<sup>0</sup>N, 77.06<sup>0</sup>E), 09.iv.2013, Coll. Rajmohana, on card, Reg. No. ZSI/WGRS/IR.INV.4637.

#### Etymology

This species is named 'hirsuta' as the metapleuron of the species is fully pilose.

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#### Comments

*Amblyaspis hirsuta* sp. n. runs to *A. vietnamensis* in Buhl's key to Oriental species of *Amblyaspis* (2009), but differs in the following characters. OOL 1.89 X LOL in *Amblyaspis hirsuta* sp. n. whereas only 1.25 X in *A. vietnamensis*. Mesoscutum is with sparsely arranged short hairs in *A. hirsuta* sp. n. whereas, two broad stripes of short hairs along imaginary notauli is present in *A. vietnamensis*. Metapleuron is fully pilose in *A. hirsuta* sp. n. whereas sparsely pilose in *A. vietnamensis*.

*A. hirsuta* sp. n. is very similar to *A. khasiana* Veenakumari & Buhl, described from India but differs in the following. A10 in 1.7 X longer than wide in *A. hirsuta* sp. n. and 1.08 X in *A. khasiana*. Scape is 5.8 X longer than wide in *A. hirsuta* sp. n. whereas 5.3 X in *A. khasiana*. *A. khasiana* also has metasoma more than twice as long as wide, A8-A9 less transverse, and POL only 2.1 X LOL. Also body appendages distinctly brighter coloured in *A. hirsuta* sp. n. than in *A. khasiana*.

*A. hirsuta* sp. n. is compared with all known species of *Amblyaspis* from India. OOL is less than 1.5 X LOL in all the known species from India. In *A. dalhousianus* Mukerjee, OOL 1.45 X OD. In *A. charvakae*, *A. fabrei*, *A. panhalensis*, *A. tipusultani* mesoscutum is with setae arranged in an imaginary notaular line which is absent in *Amblyaspis hirsuta* sp. n. *A. kurinjii* is with deep notauli. Scape is 5.8 X as long as wide in *Amblyaspis hirsuta* sp. n. whereas, only 3.9 X as long as wide in *A. ashmeadi*.

***Amblyaspis emarginata* Anjana and Rajmohana, sp. n. (Figs. 9-16).**

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**Diagnosis:** Length 0.93 mm; head 1.86 X wider than long; scape 5.2 X as long as wide; wings emarginate medially; metapleuron setose only at the posterior corners.

#### Description:

Female: Length 0.93 mm (holotype) (fig. 9);

scape yellowish brown; A2-A10 brown; legs including coxae yellow; tegula light brown; microtrichia dark brown; last segment of tarsi slightly darkened.

Head from above 1.86 X as wide as long (fig. 10); 1.18 X as wide as mesosoma; occiput finely reticulate with granulations and without any striae; head in front view 1.14 X as wide as high; frons reticulate (fig. 11); lower frons above toruli with several transverse striae; IOS 2.25 X eye height; eyes bare; OOL 3.45 X OD; OOL 1.4 X LOL; POL 1.96 X LOL; eye height (in dorsal) 3.5 X temples; hyperoccipital carina present extending between orbits; antennae covered with white setae (fig. 12); scape 5.2 X as long as wide, 1.24 X as long as claval segments combined; ratio of length and width of antennal segments A1-A10 being: 0.26: 0.05; 0.07: 0.04; 0.05: 0.04; 0.03: 0.03; 0.04: 0.03; 0.04: 0.04; 0.05: 0.05; 0.05: 0.06; 0.04: 0.05; 0.07: 0.04.

Mesosoma 1.45 X as long as wide (fig. 13); mesoscutum 1.09 X as long as wide, finely reticulate with sparse setae; notauli absent; pronotum non angular, clearly visible from above; lateral sides of pronotum with fine reticulations; mesopleuron smooth; metapleuron with sparse setae at the anterior margin and thick setae at posterior margin (fig. 14). Forewings emarginate medially; 2.18 X longer than wide, with fine and dense microtrichia; marginal fringe 0.15 X forewing width (fig. 15).

Metasoma 1.5 X as long as wide (fig. 16); T1 with white setae laterally; white setae on the base of T2, rest smooth; T3-T6 with a transverse row of setae; length and width of T1-T6 being: 0.05: 0.13; 0.26: 0.27; 0.03: 0.23; 0.02: 0.19; 0.02: 0.12; 0.03: 0.07.

#### Specimen examined

Holotype: Female, India, Kerala, Anjuruli, Idukki (9.74°N, 77.06°E), 09.iv.2013, Coll. Rajmohana, on card, Reg. No. ZSI/WGRS/IR.INV.4638.

#### Etymology

This species is named 'emarginata' as the forewing of the species is medially emarginate.

### Comments

This species runs to *A. cariniceps* Buhl, 1997 in Buhl's key to Oriental species of *Amblyaspis* (2009). Even though, *A. cariniceps* also has OOL slightly shorter than LOL and me-

tapleuron evenly covered by pilosity, *A. emarginata* sp. n. differs from *A. cariniceps* in having medially emarginate wing. This character makes this species unique from all other known species of *Amblyaspis*.



Plate 1. *A. hirsuta* sp. n. (1) Female (2) Head dorsal (3) Frons (4) Antenna (5) Mesosoma (6) Pleura (7) Metasoma (8) Wings.

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Plate 2. *A. emarginata* sp. n. (9) Female (10) Head dorsal (11) Frons (12) Antenna (13) Pleura (14) Mesosoma (15) Metasoma (16) Wings.





Plate 3. *A. narendrani* sp. n. (17) Female (18) Frons (19) Head dorsal (20) Mesosoma (21) Pleura (22) Antenna (23) Metasoma (24) Wings.

*Amblyaspis narendrani* Anjana and Rajmohana, sp. n. (Figs. 17-24).

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**Diagnosis:** Length 1.72 mm; head 2 X as wide as long; scape 5.3 X as long as wide; occiput with longitudinal striae on the lateral ends; marginal fringe almost absent.

### Three new species of *Amblyaspis* Förster (Hymenoptera: Platygasteridae) from India

#### Description:

Female: Length 1.72 mm (holotype) (fig. 17); scape yellowish brown at the base and more darker towards the apex; A2-A10 brown; legs yellow; tegula black; microtrichia dark brown; last segment of tarsi slightly darkened.

Head from above 2 X as wide as long (fig. 18); occiput reticulate with longitudinal striae on the lateral ends; head in front view 1.04 X as wide as high (fig. 20); frons finely reticulate; lower frons above toruli with several transverse striae; IOS 1.36 X eye height; eyes bare; OOL 2.3 X OD; OOL equal to LOL; POL 2.4 X LOL; eye height (in dorsal) 2.3 X temples; hyperoccipital carina present extending between orbits; antennae fully covered with white setae; scape 5.3 X as long as wide; scape 1.25 X as long as claval segments combined; ratio of length and width of antennal segments A1-A10 being: 0.41: 0.08; 0.1: 0.03; 0.08: 0.04; 0.06: 0.04; 0.06: 0.04; 0.06: 0.05; 0.09: 0.08; 0.08: 0.08; 0.06: 0.07; 0.10: 0.06 (fig. 19).

Mesosoma 1.5 X as long as wide (fig. 21); mesoscutum 1.08 X as long as wide, finely reticulate; five setae present towards the lateral end of the mesoscutum; notauli absent, imaginary notaular line present; pronotum non angular, clearly visible from above; lateral sides of pronotum with fine reticulations with scattered white setae; scutellum fully covered with white setae; 1.2 X as long as wide; mesopleuron smooth; metapleuron with sparse setae at the anterior margin and thick setae at posterior margin (fig. 22). Forewings 2.4 X longer than wide, with fine and dense microtrichia (fig. 24).

Metasoma 1.5 X as long as wide (fig. 23); T1 with parallel median carinae with a depression in between; dense lateral setae present on T1; white setae on base of T2, rest smooth; T3-T6 with a transverse row of setae; length and width of T1-T6 being: 0.14: 0.18; 0.53: 0.4; 0.04: 0.35; 0.05: 0.3; 0.05: 0.24; 0.07: 0.13.

#### Specimen examined

Holotype: Female, India, Kerala, Manalar, Idukki (9.62°N, 77.34°E), 07.iv.2013, Coll. Abhilash Peter, on card, Reg. No. ZSI/WGRS/IR.INV.4639.

#### Etymology

This species is named 'narendrani' after the eminent taxonomist, late Prof. Dr. T. C. Narendran.

#### Comments

This species runs to *A. cariniceps* Buhl, 1997 in key to Oriental species of *Amblyaspis* (Buhl, 2009). *A. cariniceps* is much smaller compared to new species. Occiput is without longitudinal striae in *A. cariniceps*. Also, OOL is equal to LOL in new species whereas, LOL 1.2 X OOL in *A. cariniceps*. *A. cariniceps* also has metapleuron evenly covered by pilosity.

*A. narendrani* sp. n. is compared with all the Indian species of *Amblyaspis*. It differs from *A. kurinjii* Veenakumari and Buhl in not having notauli. New species having OOL equal to LOL differs from all other Indian species.

This species is very similar to Palearctic *A. roboris* (Walker, 1835), cf. Vlug (1985). Even though it runs to *A. roboris* (Buhl and Choi 2006; Buhl 1999), the frontal sculpture of *A. narendrani* sp. n. is a completely different (reticulate meshes) than on *A. roboris* (transversely granulate, uneven without meshes) sufficiently differentiate the two species. Also, LOL is not equal to OOL in *A. roboris*. Also, the longitudinal rows of setae on mesoscutum is more wider and more scattered in *A. roboris* than in *A. narendrani* sp. n.

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